Molecular Activities of Plant Cells: An Introduction to Plant Biochemistry; By J.W. Anderson and J. Beardall; Blackwell Scientific Publications; Oxford, 1991; xv + 384 pages; £49.50 (hardback), £22.50 (softback).

Until the appearance of this volume, an undergraduate-level text book which provided an overview of biochemistry, but from a plant scientist's viewpoint, was long overdue. Previously, the undergraduate student was forced to glean available information from otherwise excellent texts such as Stryer's 'Biochemistry' or the equivalent volume from Lehninger. The alternative was immersion in one of the more specialist volumes, usually more suited to graduate level study. In most cases such publications were confined to a few narrow areas, e.g. photosynthesis.

Material covered within the first section is termed 'GENERAL BIOCHEMISTRY' and covers the major classes of biomolecules to be found within plant cells, e.g. carbohydrates, lipids, amino acids, etc. Basic bioenergetics, enzyme regulation and membrane transport also find space here. Part Two moves on to consider the ways in which energy can be generated, opening with oxidative mechanisms, including glycolysis and the TCA cycle and moving on to a thorough discussion of photosynthesis. In particular within the latter section, much recent work concerning the distribution of protein complexes within photosynthetic membranes and the manner in which electron transport may be regulated, is included to useful effect. Part Three essentially covers the various assimilatory processes for small molecules such as CO_2 and N_2 whilst, finally, Part Four addresses the synthesis of larger macromolecules including cell walls, pigments, proteins and RNA/DNA. The volume closes with a brief consideration of gene regulation and organelle biogenesis.

The standard of writing is excellent and whils I found myself wanting to read more detail, is at about the right level of content for the undergraduate since selected 'further reading' is included at the end of each chapter. The material contained is also right up-to-date, although there are one or two odd omissions, such as Michel and co-workers' Nobel Prize winning efforts with the bacterial reaction centre! This could usefully have been included in the chapter on 'Photosynthesis'. These are, however, minor niggles. Finally, the book has a thoroughly comprehensive index, which is a vital inclusion for its target customers.

Paul Millner

Introduction to the Cellular and Molecular Biology of Cancer; Edited by L.M. Franks and N.M. Teich; Oxford University Press, Oxford, 1991; xiv + 558 pages; £22.50

This is a potentially extremely useful volume whose value lies in the fact that it covers a wider range of topics than might at first be realised from its title. The investigation of the molecular and cellular biology of cancer and carcinogenesis is an extremely active and exciting area of research at present. This activity results partly from the medical (and economic) importance of the disease(s) which has helped to direct public attention and funding towards research in the area and partly from the fact that cancer has a genetic basis and the newly developed gene-cloning techniques have been able to be used with great success. This has meant that there is a continuous influx into cancer research of research workers who are highly trained in the theory and application of the latest molecular techniques but often less aware of the enormous volume of non-molecular biological cancer research. It is for such people that I feel this book could prove invaluable.

'Introduction to the Cellular and Molecular Biology of Cancer' is a multi-authored volume consisting of nineteen chapters, each reviewing a specific area of cancer research and each written by an expert (or two) in that area. There are chapters on: 'Structure of DNA and its relationship to carcinogenesis' (B.E. Griffin); 'Viruses and cancer' (J.A. Wyke); 'Oncogenes and cancer' (N.M. Teich); 'The role of growth factors in cancer' (M.D. Waterfield) etc., so that the latest cellular and molecular biological research findings are well surveyed. However, as I have indicated above, the aspect of the book that I find most rewarding is that such data are set securely in context. Thus there are also chapters on: 'Epidemiology of cancer' (M.C. Pike and D. Forman); 'Inherited susceptibility to cancer' (W.F. Bodmer); 'Biology of human leukaemias' (M.F. Greaves); 'Immunology of cancer' (I.S. Fentiman) and 'Chemotherapy' (J.S. Malpas). Any newcomer to cancer research who took the time to make his/her way through this book would thereby construct a very firm foundation for whatever specialised topic they intended to study. Equally, those of us who have already immersed ourselves in our own area of expertise will still be able to benefit from using this book to give us handy summaries of related areas or alternative approaches.

The organisation of the different chapters is well done and (for such a volume) remarkably consistent throughout. Each chapter starts with an index of subsection titles and page numbers and most, though not all, end with a helpful summary or conclusion section. The citation of references is selective and serves to give the reader an entry into the literature of a particular topic, rather than an exhaustive list of research papers. This is the second edition of the book and as such it is reasonably up-to-date in the material it covers. Inevitably certain chapter authors have had an easier task than others in this respect. One can only sympathise with Natalie Teich who drew the short straw of summarising the present day situation of 'Oncogenes and cancer' in 30 pages or so! However, in this connection I did rather feel that tumour suppressor genes had been 'sold short'. Certainly I do not feel that the cancer research newcomer, reading this book, would appreciate the importance that is increasingly being attached to antioncogenes. Nevertheless, I feel that overall a splendidly high standard has been maintained and effective editing has united the separate contributions into a coherent whole. One small but important example of the latter is the degree of cross-referencing between chapters, which I found particularly helpful.

I can thoroughly recommend this book as a source of background material for advanced undergraduates and postgraduates, newly entering the field of cancer research. Its strongest virtue is the breadth of the survey it conducts and it should not be confused with more advanced 'Review' volumes which give more detailed accounts of more restricted subject areas.

C.D. Green